

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Patent Application No. 09/762,233

### **REMARKS**

Reconsideration and allowance of the subject application is respectfully requested. Upon entry of this Amendment, claims 1-19 are pending in the application. In response to the Office Action, Applicant respectfully submits the pending claims define patentable subject matter.

#### **I. Preliminary Matters**

The drawings are objected to because the Examiner maintains that Figures 1-13 should be labeled "Prior Art" because these drawings illustrate conventional display devices and driving methods. Further, Figure 13 is objected because the use of a non-English language term. Along with this Amendment, Applicant is submitting replacement drawings wherein Figures 4, 5 and 7-12 are labeled "Prior Art" and Figure 13 is amended to replace the non-English language text with the word "OR". Figures 1, 2, 3 and 6 have not been labeled "prior art" because Applicant respectfully submits that these figures are not prior art but instead are provided for to clarify operation of the present invention. Accordingly, the Examiner is requested to removed the objection to the drawings.

Claims 16-19 are objected to as being in improper multiple dependent form. Further claims 13 is objected to and claim 15 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite due to grammatical errors. By this Amendment, Applicant has amended theses claims to change the dependencies and improve clarity. Accordingly, the Examiner is requested to remove § 112, second paragraph, rejection.

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Patent Application No. 09/762,233

The specification is objected to as failing to follow the proper arrangement and order as required by 37 CFR 1.77(b). By this Amendment, Applicant has amended the specification to comply with 37 CFR 1.77(b). Accordingly, the Examiner is requested to remove the objection to the specification.

**II. Rejection of claims 1 and 4-6**

Claims 1 and 4-6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Admitted Prior Art in view of Ito et al. (USP 5,959,603; hereafter "Ito"). Applicant respectfully traverses the prior art rejection.

With regard to claim 1, the Examiner cites column 4, lines 58-67 and Figure 48B of Ito for allegedly teaching applying, during a selection period, a basic voltage level or levels consisting of a level or levels unequal to  $V_o$ -level or/and of  $V_o$ -level to a signal electrode for obtaining current values of brightness of a selected display element or of a group of selected display elements; and applying, during the selection period, two additional voltage levels having different polarities, the same constant modules of deviation from  $V_o$ -level, and constant and equal duration to the signal electrode.

Ito does not teach or suggest selecting scanning electrodes in one by one sequence. Instead, Ito describes selection of scanning electrodes in two by two (or more) sequence (See Ito Col. 39, Lines 16-20):

"(1) grouping the plurality of scanning electrodes into p groups, comprises at least i scanning electrodes, wherein p and i are integer of at least two,

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Patent Application No. 09/762,233

(2) sequentially selecting each of the  $p$  groups and applying the selection signal to the at least  $i$  scanning electrodes...".

Further, the voltage levels shown in Fig. 48 B for electrodes Yc, Yd and described in Col. 4, lines 58-67 by Ito et al., are not additional. These levels are basic. Basic levels serve to obtain the required different (current) brightness of selected pixels. In the present application (page 22, lines 2-4), basic levels are defined as follows: "These signified and reference voltage levels are called basic levels as different (current) brightness of selected pixels is obtained by varying their combinations or their durations duration".

Appearance / non-appearance of signified and reference basic levels under Ito's or any other group-by-group selecting, as well as changes of value of these levels, are determined by current (changing with time) distribution of brightness of several blocks of simultaneously selected pixels. Features of basic levels, including their appearance / non-appearance, depend on display pattern. For example, brightness distribution in case of two line selection, presented in Fig. 48 of Ito, can be as follows: white pixel – white pixel, white – black, black – black, etc. At certain distributions of brightness the levels like those of electrodes Yc, Yd in Fig. 48B can be formed, and at other values, the levels will be like those of electrodes Ya, Yb shown in Fig. 48B. The levels of electrodes Yc, Yd in Fig. 48B can not represent all possible pixel brightness distributions.

Applicant respectfully submits that Ito does not teach or suggest "applying to the signal electrode, during the selection period, two additional voltage levels having different polarities with respect to the reference voltage level  $V_0$ , the same constant-modules of deviation from the

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Patent Application No. 09/762,233

reference voltage level  $V_0$ , and constant and equal duration". The additional voltage levels are not intended for forming the current values of pixels brightness and they do not form it. Rather, the additional voltage levels are applied to contacts (electrodes) during selection period  $T_r$ . The duration and values of the additional voltage levels are constant at any pixel brightness, in any combination of different pixels brightness, any type of selection, i.e., selecting scanning electrodes in one by one (see Fig. 18 of the present application) or group-by-group sequence (see Fig. 19 of the present application).

The purpose of the additional voltage levels is to provide, regardless of display pattern (i.e., regardless of pixel brightness and any combination of pixel brightness), the conditions necessary for efficient elimination of image disturbance intrinsic to a "quick" display and to displays operating at high frame frequency, thus making possible an increase of frame frequency, contrast and speed. Such features are not present either in voltage levels generated according to Ito or in levels formed by methods described by the Admitted Prior Art, Momose, Kobayashi, Yamazaki, Honshino, and Sheffer.

Accordingly, Applicant respectfully disagrees with the Examiner's position that the combination of Applicants Admitted Prior Art and the prior art (Fig. 48) discussed in Ito reduces crosstalk. Rather, the application of a "group-by-group sequence selection" method in certain display patterns results in increased voltage levels on signal electrodes, leading to increased values of cross-talk in comparison with cross-talk if selected in one by one sequence. On the other hand, according to the claimed invention, crosstalk be efficiently eliminated.

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Patent Application No. 09/762,233

The Examiner reliance on prior art Fig. 48B (electrodes Yc, Yd) and col. 4, lines 58-67 by Ito is not understood because it describes the narrow width of a pulse in the prior art method, i.e., "[t]he narrow pulse width leads to possible rounding when the waveform is applied to pixel and/or crosstalk may occur" (lines 64-66). The invention of Ito (Figs. 1-42) is directed to making the pulse broader than in the prior art of Fig. 48B and, by this means only, to decrease rounding and crosstalk (see col. 17, lines 16-22).

That is, the Examiner asserts that it would have been obvious to modify the Admitted Prior Art to include the alleged teachings of Ito "in order to provide a driving method for a liquid crystal panel having reduced crosstalk" and "a reduced number of column voltage levels." However, Ito teachings in this regard at Col. 11, Lines 57-58 are directed to the objectives of the invention of Ito shown in Figures 1-42, whereas the driving method depicted in Figure 48 is a prior art (conventional) method which suffers from deteriorated picture quality due to increased crosstalk from waveform roundings (see Col. 11, lines 28-38). Thus, the statements in column 11, lines 49-58 cited by the Examiner as motivation for modify the Admitted Prior Art based on the alleged teachings of Ito do not apply to the driving method in Figure 48. Accordingly, Applicant respectfully submits that the Examiner has not provided an objective line of reasoning for modifying and combining the teachings of the cited references, and thus has failed to establish a *prima facie* case of obviousness under 35 USC 103(a).<sup>1</sup>

---

<sup>1</sup> To establish a *prima facie* case of obviousness under 35 U.S.C. § 103, there must be some suggestion or motivation to modify to combine the reference teachings. "To support the conclusion that the claimed invention is directed to obvious subject matter, either references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why ... (footnote continued)

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Patent Application No. 09/762,233

However, Ito does not provide a substantial decrease of the cross-talk. That is, the resulting minimal pulse width was doubled, as compared with the prior art, due to a doubled orthogonization period (compare Fig. 3A and 3B with Fig. 46). Therefore, under the condition of the equal orthogonization periods, the minimal pulse width in Ito (see Fig. 3A and 3B) will be the same as in the prior art (see Fig. 46). Moreover, it is well known that the cross-talk dependence on the pulse width is negligible. Cross-talk mainly depends on the simultaneous voltage switching on the multiplicity of column electrodes, for example, at the moment of appearance of a uniformly bright large object on a display.<sup>2</sup>

In summary, the levels shown for electrodes Yc, Yd in prior art Fig. 48B of Ito are basic levels. These basic levels can appear in group-by-group selecting when needed for forming certain combinations of pixel brightness (such forming depends on the nature of the current scene). Thus, Applicant respectfully submits that the Examiner's combination of the Admitted Prior Art and Ito does not teach or suggest "applying to the signal electrode, during the selection period, two additional voltage levels having different polarities with respect to the reference voltage level  $V_0$ , the same constant-modules of deviation from the reference voltage level  $V_0$ , and constant and equal duration", as required by claim 1.

---

the artisan would have found the claimed invention to have been obvious in light of the teachings of the reference." *Ex parte Clapp* 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

<sup>2</sup> Thus, the most efficient element of the cross-talk elimination method is presented in the sixth embodiment of the present application (See Pages 34-37, Fig. 21, and Fig. 22) and in claims 7-10.

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Patent Application No. 09/762,233

Similarly, for the same reasons set forth above with regard to claim 1, Applicant respectfully submits that Ito does not teach or suggest “applying, during the period  $T_r$ , additional first and second voltage levels having different polarities, the same constant modules of deviation from the reference voltage level  $V_o$ , and constant and equal duration to the signal electrode, the additional the first and second voltage levels being allocated to boundary portions of the period  $T_r$ , so that the first level is allocated to a beginning portion and the second level is allocated to an end portion of the period  $T_r$ ; [and] applying, during the period  $T_r$ , voltage levels to the signal electrode in direct or in reverse order”, as required by claims 4-6.

Further, Applicant respectfully submits that Ito does not teach or suggest “alternating, in succeeding periods  $T_r$ , the orders of applying of voltage levels to the signal electrode on the basis of changing of the polarity of the voltage deviation from the reference voltage level  $V_o$  in the beginning and in the end of the period  $T_r$ , so that the positive polarity is set in the beginning of one period  $T_r$  and the negative polarity is set in the beginning of the next period  $T_r$ ”, as further required by claim 4.

In view of the above, Applicant respectfully submits that claims 1 and 4-6 should be allowable because the combined references do not teach or suggest all of the features of the claims and one of ordinary skill in the art would not have been motivated to combine the cited references for the reasons alleged by the Examiner.

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Patent Application No. 09/762,233

**II. Rejection of claims 2 and 3**

Claims 2 and 3 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Admitted Prior Art in view of Ito and Momose et al. (USP 5,157,387; hereafter "Momose"). Applicant respectfully traverse the prior art rejection.

The Examiner alleges "Ito et al. teaches ... applying during the period  $T_r$  after applying a voltage of one polarity about  $V_o$ -level and before applying a voltage of other polarity about  $V_o$ -level, the third additional  $V_o$ -voltage level having a constant duration to signal electrode (See Fig. 48 B, items Yc, Yd, in description See Col.4, Lines 58-67)".

However, the claimed first and second (additional) voltage levels are not disclosed by Ito at Fig. 48B and col. 4, lines 58-67. Further, Ito does not teach or suggest the claimed feature of "applying to the signal electrode, during the selection period  $T_r$  after applying a the first voltage of a first polarity and before applying a the second voltage of a second polarity, a third voltage level equal to the reference voltage level  $V_o$  having a constant duration  $t_o$ ."

Further, as discussed above with regard to claim 1, the Examiner's alleged motivation for modifying the Admitted Prior Art based on Ito is improper. That is, the statements in column 11, lines 49-58 cited by the Examiner as motivation for modify the Admitted Prior Art based on the alleged teachings of Ito do not apply to the driving method in Figure 48. Accordingly, Applicant respectfully submits that the Examiner has not provided an objective line of reasoning for modifying and combining the teachings of the cited references, and thus has failed to establish a *prima facie* case of obviousness under 35 USC 103(a).



AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Patent Application No. 09/762,233

With regard to Momose, the Examiner alleges the cited reference "teaches applying, during the period  $T_r$ , two additional voltage levels having different polarities, the same constant modules ( $V_m$ ) of deviation from  $V_0$ -level, and constant and equal duration ( $t_m/2$ ) to the signal electrode (See Fig. 2a, 2b, 3a, 3b, item  $t_2$ , in description See Col. 7, Lines 5-52 and 63-65)". However, Figs. 2a, 2b, 3a, 3b, and Col. 7, Lines 5-52 and 63-65) do not describe "two additional voltage levels having different polarities, the same constant modules ( $V_m$ ) of deviation from  $V_0$ -level, and constant and equal duration ( $t_m/2$ )". This portion of Momose discusses one intermediate ( "additional") voltage  $V_4$  for an interval  $t_2$  of constant duration, during period FR1, or one intermediate voltage  $V_1$  for an interval  $t_2$  of constant duration, during period FR2. Intermediate voltage in Fig. 2a, 2b, 3a, 3b is a reference voltage (i.e.,  $V_0$ :  $V_{01}$  in frame FR1,  $V_{02}$  in frame FR2). In addition, the method of Momose et al. utilizes one-by-one selecting and does not provide any solution for group-by-group selecting. Thus, the method of Momose method does not contain features which could serve as a reasonable basis for producing the claimed invention.

Accordingly, Applicant respectfully submits that claims 2 and 3 should be allowable because the combined references do not teach or suggest all of the features of the claims and one of ordinary skill in the art would not have been motivated to combine the cited references for the reasons alleged by the Examiner.

**IV. Rejection of claims 7-10**

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Patent Application No. 09/762,233

Claims 7-10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Admitted Prior Art in view of Ito and Kobayashi et al. (USP 5,162,932; hereafter "Kobayashi"). Applicant respectfully traverses the prior art rejection.

In Ito, the method of selecting in one by one sequence is not considered. Rather, Ito assigns basic levels but does not use additional voltage levels.

Similar to claim 1 discussed above, Ito does not teach or suggest "applying, during the period  $T_r$ , additional first and second voltage levels having different polarities, the same constant modules of deviation from the reference voltage level  $V_o$ , and constant and equal duration  $t_m/2$  to the signal electrode, the additional first and second voltage levels being allocated to boundary portions of the period  $T_r$  so that the first level is allocated to a beginning portion and the second level is allocated to an end portion of the period  $T_r$ ; and applying, during the period  $T_r$ , voltage levels to the signal electrode in direct or in reverse order", as required by claim 7.

Further, as discussed above with regard to claim 1, the Examiner's alleged motivation for modifying the Admitted Prior Art based on Ito is improper. That is, the statements in column 11, lines 49-58 cited by the Examiner as motivation for modify the Admitted Prior Art based on the alleged teachings of Ito do not apply to the driving method in Figure 48. Accordingly, Applicant respectfully submits that the Examiner has not provided an objective line of reasoning for modifying and combining the teachings of the cited references, and thus has failed to establish a *prima facie* case of obviousness under 35 USC 103(a).

With regards to claim 7, the Examiner alleges "Kobayashi teaches shifting the pulses in time concerning their nominal positions in the period  $T_r$  so that the values of shifting time are the

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Patent Application No. 09/762,233

same for the pulses of a single group, but are different for the pulses of different groups, and constant for certain period, after termination the time period, other values of shifting time are set in certain or in all groups of voltage pulses or other aggregate of groups of voltage pulses is formed with different values of shifting time in various groups, and the other values of shifting time are set constant for the next time period (See Fig. 8, items T1, T2, Tl, Th, Tt, in description See Col.5, Lines 10-63).” However, Kobayashi does not consider group-by-group selecting and, in Fig. 8, the application period Tt is less than a period of the respective scanning period T (or T1, or T2).

Applicant respectfully submits that Kobayashi does not teach or suggest the claimed features of “shifting the pulses in time concerning their nominal positions in the period Tr so that the values of shifting time are the same for the pulses of a single group, but are different for the pulses of different groups, and constant for certain period” and “after termination the said time period, other values of shifting time are set in certain or in all groups of voltage pulses or other aggregate of groups of voltage pulses is formed with different values of shifting time in various groups, and the other values of shifting time are set constant for the next time period”.

With regards to dependent claims 8-10, the Examiner further alleges that “since Kobayashi et al. setting time intervals arbitrarily (See Fig. 8, items T1, T2, Tl, Th, Tt, in description See Col. 5, Lines 10-63), it would have been obvious to one of ordinary skill in the art at the time of invention to set modulus of shifting times of voltage pulses applied to a group of signal electrodes in range of values from zero to  $t_m/2$  or as previous, latest, earliest shifting time value and place electrode at distance from other electrode in the group if they will have the

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Patent Application No. 09/762,233

same shifting time". However, Kobayashi does not set time intervals or time shifts arbitrarily because such arbitrary time intervals and time shifts would be contrary to the equations (8) and (9) of Kobayashi (See Col. 5, Lines 50-55). That is, Kobayashi does not set the time intervals and their shifts arbitrarily but instead sets the time intervals and shifts of time on the definite rule in order to solve the definite task. Accordingly, Applicant respectfully submits that Kobayashi does not teach or suggest the claimed features of dependent claims 8-10.

Accordingly, Applicant respectfully submits that claims 7-10 should be allowable because the combined references do not teach or suggest all of the features of the claims and one of ordinary skill in the art would not have been motivated to combine the cited references for the reasons alleged by the Examiner.

**V. Rejection of claims 11 and 12**

Claims 11 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Admitted Prior Art in view of Ito and Yamazaki (USP 5,151,690). Applicant respectfully traverses the prior art rejection.

In Ito, the method of selecting in one by one sequence is not considered. Rather, Ito assigns basic levels but does not use additional voltage levels.

Similar to claim 1 discussed above, Ito does not teach or suggest "applying, during the selection period, additional first and second voltage levels having different polarities, the same constant modules of deviation from the reference voltage level  $V_o$ , and constant and equal duration to the signal electrode, the additional first and second levels setting approximately

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Patent Application No. 09/762,233

constant deviations from the nominal values of mean square voltage on cells connected with the signal electrode, the deviations being caused by distortions of a shape of the voltage pulses in process of their propagation along the signal electrode", as required by claims 11 and 12.

Further, as discussed above with regard to claim 1, the Examiner's alleged motivation for modifying the Admitted Prior Art based on Ito is improper. That is, the statements in column 11, lines 49-58 cited by the Examiner as motivation for modify the Admitted Prior Art based on the alleged teachings of Ito do not apply to the driving method in Figure 48. Accordingly, Applicant respectfully submits that the Examiner has not provided an objective line of reasoning for modifying and combining the teachings of the cited references, and thus has failed to establish a *prima facie* case of obviousness under 35 USC 103(a).

The Examiner alleges:

Yamazaki teaches providing, during a frame time period, a single or several additional time intervals ( $t_c$ ); applying, during some mentioned single or several intervals  $t_c$ , compensative voltages  $V_{com}(i)$  to each  $i$ -th scanning electrode, beginning with a certain electrode, or/and during other mentioned single or several intervals  $t_c$ , applying compensative voltages  $V_{com}(j)$  to each  $j$ -th signal electrode, beginning with other certain electrode, the said voltages  $V_{com}(i)$  or/and, respectively,  $V_{com}(j)$  having values or/and durations specific to each electrode and giving the total or a partial compensation of the deviations of the mean square voltages on the sells of the  $i$ -th scanning electrode from their nominal values or/and, respectively, of the deviations of the mean square voltages on the sells of the  $j$ -th signal electrode from their nominal values, the said deviations initiated by the said distortions of shape of the signal voltage pulses in process of their propagation along the signal electrode, or/and, respectively, initiated by distortions of shape of the scanning voltage pulses in process of their

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Patent Application No. 09/762,233

propagation along the scanning electrode; and applying, during the mentioned intervals  $t_c$ , the reference voltage or a quasi-reference voltage or a quasi-reference voltage on average or their combination to the scanning or/and to the signal electrodes free from the said compensative voltages. (See Fig. 7, items F1, F2, TC, in description from Col. 8, Line 55 to Col. 5 Col. 9, Line 23)".

However, Yamazaki does not disclose group-by-group selecting. In Yamazaki, the process of one-by-one selecting includes "providing, during the operation of said panel, periods of time during which said panel is driven to produce a display pattern (the driving time), and periods of time during which said panel is compensated at least in part for display unevenness during preceding display time due to the display pattern (the compensation times)" (See Col. 14, Lines 4-10). Further, "the compensating waveform applied to each signal electrode... varied ... in accordance with the number of variations between lighting and non-lighting voltages applied to that signal electrode ... during a predetermined period of a display time" (See Col. 14, Lines 26-34).

However, the features of claim 11 such as "applying ... compensating voltages  $V_{com}(i)$  to each  $i$ -th scanning electrode", "applying ... compensating voltages  $V_{com}(j)$  to each  $j$ -th signal electrode", "the voltages  $V_{com}(i)$  or/and, respectively,  $V_{com}(j)$  having values or/and durations specific to each electrode", " $V_{com}(i)$  giving the total or a partial compensation of the deviations of the mean square voltages on the sells of the  $i$ -th scanning electrode from their nominal values ... the said deviations initiated by the said distortions of shape of the signal voltage pulses in process of their propagation along the signal electrode", " $V_{com}(j)$  ... giving the total or a partial compensation of the deviations of the mean square voltages on the sells of the  $j$ -th signal electrode from their nominal values ... the said deviations initiated by distortions

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Patent Application No. 09/762,233

of shape of the scanning voltage pulses in process of their propagation along the scanning electrode", are absent in Yamazaki's method. All the compensating voltages applied to any electrode are constant in time and do not depend on display pattern of any time, of present or predetermined periods. (See Figs. 6 and 7, and description from Col. 8, Line 55 to Col. 9, Line 23).

Hence, the method described in Yamazaki does not possess the features which can constitute the basis for Claim 11 without additional intellectual (creative) contribution.

In addition, although the Examiner did not specifically address all of the claimed features of claim 12, Applicant respectfully submits that the Admitted Prior Art, Ito and Yamazaki do not teach or suggest "applying, during the selection periods, additional compensative voltages to selected scanning electrodes, beginning with a certain electrode, and superimposing the compensative voltage on the scanning voltage, the compensative voltage having value or/and duration specific to the selected scanning electrode and total or a partial compensating the deviations of the mean square voltages on the cells of the selected scanning electrode from their nominal values, the deviations being caused by the distortions of shape of the signal voltage pulses in process of their propagation along the signal electrode", as required by claim 12.

According, Applicant respectfully submits that claims 11 and 12 should be allowable because the combined references do not teach or suggest all of the features of the claims and one of ordinary skill in the art would not have been motivated to combine the cited references for the reasons alleged by the Examiner.

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Patent Application No. 09/762,233

**VI. Rejection of claims 13 and 14**

Claim 13 is rejected under 35 U.S.C. § 103(a) as being unpatentable over the Admitted Prior Art in view of Hoshino et al. (USP 5,301,047; hereafter "Hoshino"). Claim 14 is rejected under 35 U.S.C. § 103(a) as being unpatentable over the Admitted Prior Art in view of Hoshino in view of Sheffer et al. (USP 5,861,869; hereafter "Sheffer"). Applicant respectfully traverses the prior art rejections.

With regard to independent claim 13 the Examiner alleges:

Hoshino et al. teaches applying pulses of voltage to signal electrode, the said pulses setting basic voltage level or levels setting nominal values of mean square voltage on selected sells for obtaining nominal values of brightness of selected display elements; the distinguishing step of: forming voltage pulses in the shape providing total or partial self-compensation of spurious changes of the mean square voltages on the selected sells, the said changes initiated by distortions of fronts and tails of the pulses in process of their propagation along display electrode (See Fig. 1a, 1B, 2, in description See from Col. 4, Line 18 to Col. 5, Line 16)".

However, Hoshino teaches "superimposing voltage signals to ... X electrodes (or to X reference voltages, or to X driving voltages), wherein each of said voltage signals is a high-frequency compensating voltage which continuously varies the waveform of the liquid crystal driving voltages ..." (See Claims 5 - 7, Col. 18, Lines 3-7, 19-23, 36-40) and "superimposing voltage signals to ... Y electrodes (or to Y reference voltages, or to Y driving voltages), wherein each of said voltage signals is a high-frequency compensating voltage which continuously varies the waveform of the liquid crystal driving voltages ..." (See Claims 12 - 14, Col. 20, Lines 12-16, 28-32, 36-40).



AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Patent Application No. 09/762,233

Hoshino does teach or suggest "forming voltage pulses in the shape providing total or partial self-compensation of spurious changes of the mean square voltages on the selected cells, the changes initiated by distortions of fronts and tails of the pulses in process of their propagation along display electrodes", as required by claim 13.

With regard to dependent claim 14, the Examiner alleges "Sheffer et al. teaches the front of pulse is formed in stepwise shape (See Fig. 6A, items 1-2, in description See Col. 9, Lines 52-64)". However, in Fig. 6A and in description Col. 9, Lines 52-64, Sheffer teaches a Split Interval Mode with a pulse-width modulation technique to achieve gray levels with the help of, so called, Swift addressing, or sometimes called as multiple Line Addressing or group-by-group selecting. The presence of the voltage level "B" and the time interval "2" in Fig. 6A depend on the distribution of brightness grades in selected pixels. In other brightness grade distributions, the voltage level will be absent or different level and have a different time interval. The shape of the voltage pulse does not provide for total or partial self-compensation of spurious changes of the mean square voltages on the selected cells.

In other words, Sheffer does not teach the claimed feature of "the front of pulse is formed in stepwise shape" to provide "total or partial self-compensation of spurious changes of the mean square voltages on the selected sells, the said changes initiated by distortions of fronts and tails of the pulses in process of their propagation along display electrode".

Accordingly, Applicant respectfully submits that claims 13 and 14 should be allowable because the combined references do not teach or suggest all of the features of the claims.

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Patent Application No. 09/762,233

## VII. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Christopher R. Lipp  
Registration No. 41,157

SUGHRUE MION, PLLC  
Telephone: (202) 293-7060  
Facsimile: (202) 293-7860

WASHINGTON OFFICE

23373

CUSTOMER NUMBER

Date: January 26, 2004

Attorney Docket No.: Q62631